



OFFICE MEMORANDUM

DATE: September 27, 2001

TO: Region Engineers
Region Associate Delivery Engineers
Region Construction Engineers
Resident/Project Engineers/TSC Managers
Region Traffic Engineers

FROM: C. Thomas Maki
Chief Operations Officer

Gary D. Taylor
Chief Engineer/Deputy Director
Bureau of Highway Technical Services

SUBJECT: Bureau of Highway Instruction Memorandum 2001-13
Sampling and Testing of Bituminous Density Cores

To assure compliance with the FHWA 23CFR 637 for independent sampling and testing, and to assure the integrity of MDOT's quality assurance (QA) process, the engineer is to become responsible for core management. The following changes are to become effective immediately on all MDOT bituminous projects.

At the pre-production meeting, the engineer is to discuss the QA density core sampling selection and marking processes. The engineer is to document the contractor's concerns and any resolution.

The location of each core (four cores per subplot) is to be determined by the engineer using a random number generating calculator. Random number tables are no longer acceptable. Prior to paving, the random numbers are to be predetermined, documented, and assigned to the sublots by the engineer. This documentation is to be given to the contractor at the conclusion of the project. The core locations for each subplot are to be based on longitudinal and transverse measurements rather than tonnage. The contractor is not to know the site of the core location until the actual site has been marked by the engineer.

After final rolling is complete, the selected coring site is to be located by the engineer by measurement from applicable reference points and lines. For longitudinal measurements, a DMI, tape, or wheel are acceptable measuring devices. For transverse measurement, tape measurements must be used. In no case is "pacing" acceptable. The engineer is to utilize a consistent measuring procedure and document the procedure.

The location of the core can only be adjusted as described in the applicable special provision. If the location is to be adjusted, the contractor is to be informed of the change. The engineer is to document the change and the reason. The site is to be marked with a two-inch diameter paint dot (a large 'T' or 'X' may be painted to 'find' the dot), which represents the center of the core.

The contractor may use this location to calibrate his density gauge, but this activity cannot result in relocating the center of the core.

The contractor is to core the pavement within 24 hours after final rolling (per the specification). The engineer's QA samples are to be six-inch diameter cores (actual core diameter). The contractor will have the opportunity to immediately measure and record the lift thickness.

The engineer is to ensure the chain of custody of QA cores by: witnessing the coring; taking immediate possession of the core; properly labeling the core; and documenting these steps. The engineer is to document any damage caused by the contractor's coring process and note if re-coring is necessary. Cores are not acceptable if sampled when the engineer's witness was not present. Handle cores with care. The paint dot is to be visible on the core.

The engineer is to handle cores in a secure manner, including transport and storage. Protecting cores during transport from the project site is very important to insure they are not damaged. The process during transport is to use a standard cooler packed with ice and place individual cores vertically in plastic concrete cylinder molds cut to fit the size of the cooler.

The contractor will be allowed to take informational cores for Quality Control testing as approved by the engineer, as long as the core does not interfere with any QA cores and a five-inch, or less, diameter core is used. The contractor shall document informational core locations in a logbook. This logbook must list reproducible (verifiable) locations of all informational cores taken from the project. This logbook will be available for review by MDOT personnel at all times.

Preparation of the cores for testing requires a wet saw to cut all existing pavement or bond coat material from the bottom of the core samples and recording of the measurements of the remaining core material. The testing continues to be performed as described by the existing specifications and the current edition of the Bituminous QC/QA Procedures Manual of Field Testing.

It is preferred that the department's QA testing (and core sawing) be performed at the engineer's laboratory. As specified, the results (on Form 1907m) are to be provided to the contractor within two working days. (Work days may include Saturday and Sunday if production paving is occurring on those days.)

The engineer's tests on the compacted bituminous mixture will continue to be used as a basis of acceptance and payment (as specified).

The engineer shall provide written instructions to the contractor notifying him of these changes by work order. A recommended work order is attached. These changes will modify the Special Provision for Furnishing and Placing Superpave/Marshall Bituminous Mixture, Section 2d.1, contained in the proposal. No additional costs to the contract will be authorized as a result of these changes.

Please contact Mike Frankhouse (517-322-5672) or Gary Mayes (517-322-5668) if you have questions.

Chief Operations Officer

Chief Engineer/Deputy Director
Bureau of Highway Technical Services

BOHTS:C/T:MF:kab

Subject Index: Bituminous

Attachment

cc: C & T Staff
Real Estate, M. Frierson
Design Division, P. Miller
Maintenance Division, C. Roberts
Traffic & Safety Division, J. O'Doherty
C & T Division, J. Culp
OEO - S. El Ahmad
J. Klee
R. Knapp
V. Blaxton
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MRBA
MAPA
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AUC
CRAM
MRPA
ACEC

Recommended Wording
Work Order for Bituminous QA Density Core Handling
Subject: QA Density Core Management

The Contractor is directed to delete the fourth paragraph of Section 2.d.1 of the Special Provision for The Furnishing and Placing Superpave Bituminous Mixture (With Sampling Behind the Paver); The Furnishing and Placing Superpave Bituminous Mixture (With Sampling From the Transport Truck) or The Furnishing and Placing Marshall Bituminous Mixture (With Sampling From the Transport Truck) stating “All previous pavement, base,.....within one working day of mixture placement.”

Add the following paragraph as a replacement for the paragraph deleted above:

“The Contractor shall core the pavement for Quality Assurance (QA) testing and immediately provide the QA cores to the Engineer. The Contractor will notify the Engineer sufficiently in advance of coring the pavement to ensure that MDOT has a representative available to witness the coring operation and take immediate possession of the cores. The six-inch diameter cores shall be provided to the Engineer directly from the QC person performing the coring operation and cores shall not be transported or removed from the project except by the Engineer. The random locations for the QA cores will be identified by a paint mark in the form of a two-inch diameter dot. The painted dot shall be visible on the QA cores. MDOT will prepare the cores for testing at the Engineer’s Laboratory. The test data will be faxed to the Contractor upon completion of the testing.

The Contractor will be allowed to take informational cores for Quality Control testing as approved by the Engineer, as long as the core does not interfere with any QA Cores and a five-inch, or less, diameter core is used. The Contractor shall document informational core locations in a logbook. This logbook must list reproducible (verifiable) locations of all informational cores taken from the project. This logbook will be available for review by MDOT personnel at all times.

The Contractor is directed to delete the second paragraph from the Standard Specifications Section 501.02.B stating “A Field Laboratory.....through certification process.”

MDOT shall provide laboratory facilities and equipment for QA testing.

The changes included in this Work Order do not change any contract Unit Prices, Contract Completion Dates, or other Contract Requirements.